HEXAGON TRANSPORTATION CONSULTANTS, INC.

June 29, 2004

Milo L. Terzich, P.E.
Development Manager
USA Properties Fund, Inc.
2440 Professional Drive, St. 100
Roseville, CA 95661

Re: Parking Requirements for the Milpitas Family & Senior Project in Milpitas

Dear Mr. Terzich:

This letter is to provide Hexagon's opinion on the likely impacts of the proposed parking plan for the family style units. It is our understanding that the project meets the City's overall parking code requirements, but that the guest parking stalls would not be pooled. One guest space would be assigned for each unit and be located behind a tandem garage space.

Generally, pooled guest parking is preferred because residents occasionally have more than one guest. However, for an individual resident, one "exclusive" guest parking space would most likely suffice a majority of the time. When multiple guest parking spaces are required, residents would be required to cooperate with their neighbors in order to locate available parking. It is likely that residents' vehicles occasionally would be blocked in by someone else's guest. While this arrangement is not ideal, it is not uncommon in highly dense urban areas such as the City of San Francisco.

The primary transportation drawback of the proposed parking plan is that there would be no close available street parking. If guests were unable to locate parking within the development, very long walking distances could be required. This increases the probability of resident complaints and illegal parking both onsite and at adjacent uses.

The primary transportation advantage of the proposed parking plan is that it would serve to encourage other modes of transportation to and from the site, such as walking, biking, or transit. Studies have shown that constrained parking supply is one of the most effective methods to encourage alternatives to the single occupant vehicle. As an alternative to driving to the site, the VTA has a bus transfer station and light rail system within walking distance of the project.

This concludes our analysis. If you have any questions, please feel free to give me a call.

Sincerely,

HEXAGON TRANSPORTATION
CONSULTANTS, INC.

Brett Walinski
Sr. Project Manager

40 South Market Street, Suite 600 • San Jose, California 95113
phone 408.971.6100 • fax 408.971.6102 • www.hextrans.com

MEMORANDUM

DATE: September 15, 2004

TO: Stacy Pereira, City of Milpitas Planning

FROM: Brett Walinski

RE: Milpitas Family and Senior Project - Access to Montague Expressway

---

Per your request, Hexagon has analyzed the level of service impacts of placing a right-turn only driveway from the proposed project to Montague Expressway. The Montague driveway would be in addition to the two proposed project driveways on Main Street. There is an existing driveway at the subject location on Montague Expressway that is used for commercial access by vehicles and trucks. The impact of the project driveway on project traffic would be as follows:

- Approximately 6 AM peak hour trips and 18 PM peak hour trips heading westbound on Montague Expressway from east of Main Street would be diverted to the new driveway. As a result, these trips would no longer need to make a westbound right turn at the intersection of Montague Expressway and Main Street, which experiences significant congestion during the AM and PM peak hours.

- Approximately 7 AM peak hour trips and 4 PM peak hour trips destined westbound on Montague Expressway from the project site would be diverted to the new driveway. As a result, these trips would execute a westbound through movement at the intersection of Main Street and Montague Expressway instead of a southbound right-turn movement.

- With the driveway, the intersection of Montague Expressway and Main Street would operate at level of service E under project conditions during the AM peak hour with an average delay of 77.2 seconds. During the PM peak hour, the intersection of Montague Expressway and Main Street would operate at level of service E under project conditions with an average delay of 79.3 seconds. The LOS standard for intersections on Montague Expressway is LOS E. Therefore, the proposed driveway would not create an adverse significant LOS impact on Montague Expressway.

- Aside from LOS, the driveway would be a point of conflict for traffic on Montague Expressway. Also, the Montague driveway may result in some drivers from the proposed project attempting westbound to eastbound U-turns at Montague Expressway and Main Street. On a regional facility such as Montague Expressway, limited driveway access is generally preferred.

- For the proposed project, the access to Montague Expressway would be beneficial and allow for easier access for emergency vehicles and large trucks.

40 South Market Street, Suite 600 • San Jose, California 95113
phone 408.971.6100 • fax 408.971.6102 • www.hextrans.com

FEHR & PEERS ASSOCIATES, INC.
Transportation Consultants

2990 Lava Ridge Court, Suite 200
Roseville, CA 95661

916 773-1900 • Fax 916 773-2015
fehrandpeers.com

February 14, 2002

Mr. Troy Estacio
Project Manager
USA Properties Fund
2440 Professional Drive, Suite 100
Roseville, CA 95661-7773

Re: Traffic and Parking Study Summary for Five USA Properties Fund's Senior Communities

Dear Mr. Estacio:

Fehr & Peers Associates has completed a traffic and parking study for five USA Properties Fund senior communities located in Northern and Southern California. The purpose of the study was to summarize the existing trip generation and parking demand based on the data collected at the five facilities.

Introduction

Daily, AM and PM peak hour trip generation rates and parking demand were determined for the following five USA Properties senior communities:

- Vintage Canyon in Brea, CA
- Vintage Gardens in West Covina, CA
- Vintage Point in Oceanside, CA
- Vintage Oaks in Citrus Heights, CA
- Vintage Chateau in Petaluma, CA

Data was collected and analyzed to determine the average number of trips generated and parking spaces occupied per dwelling unit for each community. Traffic counts and parking surveys were conducted during a consecutive four-day study period (including two weekdays and weekend) at each facility. Table 1 shows the locations of the five senior communities, their occupancy levels and their available parking spaces. Refer to Attachment 1 for the existing site plans.

FEHR & PEERS ASSOCIATES, INC.
Transportation Consultants

Table 1 Locations and Dwelling Occupancies of Five Senior Communities						
Facility/ Location		Vintage Canyon in Brea, CA	Vintage Gardens in West Covina, CA	Vintage Pointe in Oceanside, CA	Vintage Oaks in Citrus Heights, CA	Vintage Chateau in Petaluma, CA
Occupancy Levels	Occupied Units	101	188	136	232	237
	Capacity	105	188	136	241	240
Available Parking Spaces		80	188	137	254	228

76 1.00 1.00 1.05 .95

Traffic Count and Parking Survey Results

The results of the traffic counts and parking surveys for the five communities are summarized below. Refer to Attachment 2 for actual counts data sheets.

Traffic Counts

Traffic counts were performed by recording the number of vehicles entering and exiting each complex during peak periods for a consecutive four-day period between Friday, January 25 and Monday, January 28, 2002, inclusive. The counts on Friday and Monday were performed from 7 a.m. to 9 a.m. and from 4 p.m. to 6 p.m. The counts on Saturday and Sunday were performed from 11 a.m. to 1 p.m. and from 4 p.m. to 6 p.m.

Table 2, on the following page, summarizes the volume of traffic observed at each facility during the AM and PM peak hours, and the average number of trips per occupied dwelling unit. Average daily trips were estimated based on the documented relationship between AM and PM peak hour trips and daily trips derived from Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 1997 for Apartments (Land Use Code 220).

As shown in Table 2, there is a notable difference between the number of weekday and weekend trips at each facility. On average, approximately 20% more trips were generated during the weekend days versus the weekdays for all the facilities except for Vintage Gardens Senior Community, at which 6% more trips were observed on the weekdays versus the weekend days.

Table 2
Traffic Volumes at the USA Properties Senior Communities

Facility		Friday January 25th		Saturday January 26th		Sunday January 27th		Monday January 28th		Average	
		Trips	Trips/Unit	Trips	Trips/Unit	Trips	Trips/Unit	Trips	Trips/Unit	Trips	Trips/Unit
Vintage Canyon in Brea, CA	Daily (E)	237	2.35	332	3.29	299	2.96	257	2.54	281	2.78
	AM	7	0.07	27	0.27	26	0.26	17	0.17	19	0.19
	PM	24	0.24	20	0.20	22	0.22	26	0.26	23	0.23
Vintage Gardens in West Covina, CA	Daily (E)	592	3.15	639	3.40	609	3.24	604	3.21	611	3.25
	AM	50	0.27	52	0.28	49	0.26	50	0.27	50	0.27
	PM	44	0.23	39	0.21	53	0.28	61	0.32	49	0.26
Vintage Pointe in Oceanside, CA	Daily (E)	376	2.76	528	3.88	310	2.28	297	2.18	378	2.78
	AM	20	0.15	43	0.32	27	0.20	17	0.13	27	0.20
	PM	38	0.28	28	0.21	23	0.17	30	0.22	30	0.22
Vintage Oaks in Citrus Heights, CA	Daily (E)	406	1.75	516	2.22	517	2.23	356	1.53	449	1.93
	AM	29	0.13	35	0.15	35	0.15	24	0.10	31	0.13
	PM	41	0.18	42	0.18	45	0.19	36	0.16	41	0.18
Vintage Chateau in Petaluma, CA	Daily (E)	517	2.18	640	2.7	517	2.18	374	1.58	512	2.16
	AM	38	0.16	53	0.22	44	0.19	30	0.13	41	0.17
	PM	51	0.22	46	0.19	41	0.17	38	0.16	44	0.19

Notes:
1. Based on traffic counts conducted between January 25 and January 28, 2002.
2. Based on 101 occupied dwelling units at Vintage Canyon, 188 at Vintage Gardens, 136 at Vintage Pointe, 232 at Vintage Oaks, and 237 at Vintage Chateau.
3. Daily trips estimated by applying the relationship between peak hour and daily trip generation as documented in *Trip Generation* for the Apartments Land Use Category.

Source: Fehr & Peers Associates, Inc., February 2002.

Figure 1 graphically illustrates the trip generation rates for the five facilities. The following summarizes the average (weighted for number of occupied dwelling units) trip generation of the five communities:

- Daily (Estimated): 2.49 trips per occupied dwelling unit;
- AM Peak Hour: 0.19 trips per occupied dwelling unit; and
- PM Peak Hour: 0.21 trips per occupied dwelling unit.

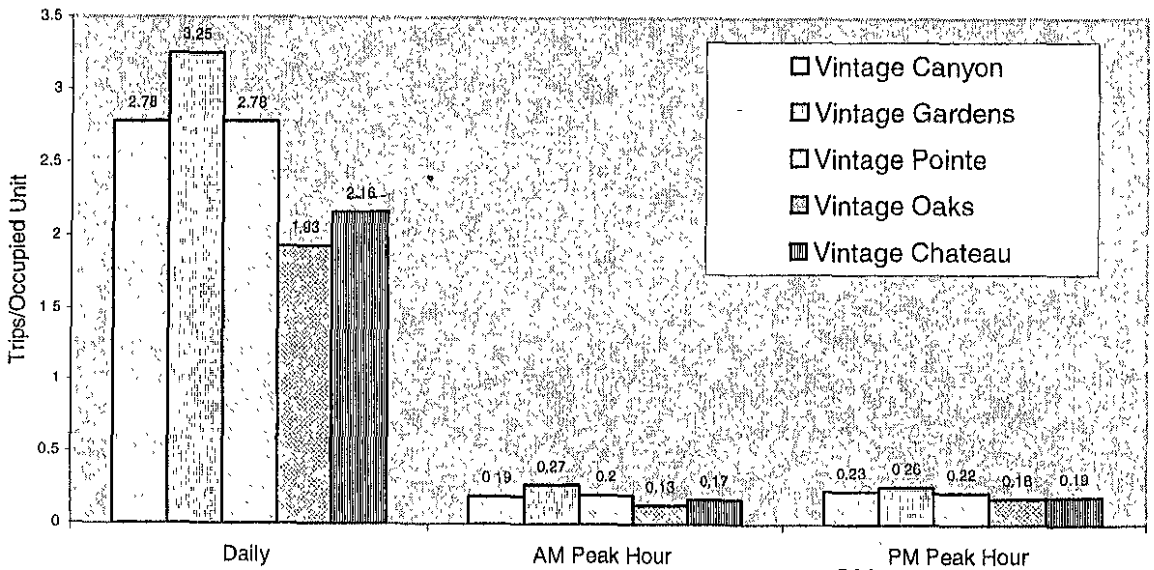


Figure 1 Trip Generation Rates Comparison for the Five Senior Communities

Parking Surveys

The number of vehicles parked within the five senior communities was surveyed between the hours of 4:00 to 5:00AM on each day between January 25, 2002 and January 28, 2002, inclusive. This period was selected because it typically represents the peak parking occupancy for residential communities. Table 3 summarizes the parking survey results. It should be noted that access to the Vintage Chateau Senior Community was not possible between Saturday, January 26 and Monday, January 28, 2002 due to an incorrect gated entry code. Therefore, the parking analysis for this community is based on the data collected on January 25, 2002 only.

Table 3
Parking Demand at the Selected USA Properties

Facility		Friday January 25th	Saturday January 26th	Sunday January 27th	Monday January 28th	Average
Vintage Canyon in Brea, CA	Occupied Spaces	54	55	55	57	55
	Occupied Spaces per Occupied Unit	0.53	0.54	0.54	0.56	0.55
Vintage Gardens in West Covina, CA	Occupied Spaces	145	153	145	139	146
	Occupied Spaces per Occupied Unit	0.77	0.81	0.77	0.74	0.77
Vintage Point in Oceanside, CA	Occupied Spaces	84	86	87	82	85
	Occupied Spaces per Occupied Unit	0.62	0.63	0.64	0.60	0.62
Vintage Oaks in Citrus Heights, CA	Occupied Spaces	150	145	147	133	144
	Occupied Spaces per Occupied Unit	0.65	0.63	0.63	0.57	0.62
Vintage Chateau in Petaluma, CA	Occupied Spaces	162	N/A	N/A	N/A	N/A
	Occupied Spaces per Occupied Unit	0.68	N/A	N/A	N/A	N/A

Notes:

1. Based on parking surveys conducted between January 25 and January 28, 2002.
2. Based on 101 occupied dwelling units at Vintage Canyon, 188 at Vintage Gardens, 136 at Vintage Pointe, 232 at Vintage Oaks, and 237 at Vintage Chateau.
3. Access to vintage Chateau in Petaluma was not possible due to incorrect gated entry access code. Therefore, parking surveys between January 26 and January 28, 2002 could not be performed.

Source: Fehr & Peers Associates, Inc., February 2002.

Table 3 shows that average parking demand (for the four-day count period) for each community ranged from 0.55 to 0.77 occupied spaces per occupied dwelling unit. The following summarizes the average and peak-day (weighted for number of occupied dwelling units) parking demand for the five communities combined:

- Average Parking Rate[1]: 0.66 occupied spaces per occupied dwelling unit;
- Maximum Parking Rate[2]: 0.68 occupied spaces per occupied dwelling unit;

[1]: Based on the average observed for the four-day count period at each community.
[2]: Based on the highest day observed at each community.

Conclusions

The purpose of this study was to determine the trip generation and parking demand for five USA Properties senior communities in Northern and Southern California. The following average trip generation rates were observed at these facilities:

- Daily (Estimated): 2.49 trips per occupied dwelling unit;
- AM Peak Hour: 0.19 trips per occupied dwelling unit; and
- PM Peak Hour: 0.21 trips per occupied dwelling unit.

Each community generated an average parking demand rate ranging from 0.55 to 0.77 spaces per occupied dwelling unit. The maximum parking demand rate (based on the average of the highest day observed at each community) was 0.68 occupied spaces per occupied unit.

We hope this information is helpful. Please call if you have any questions or need additional information.

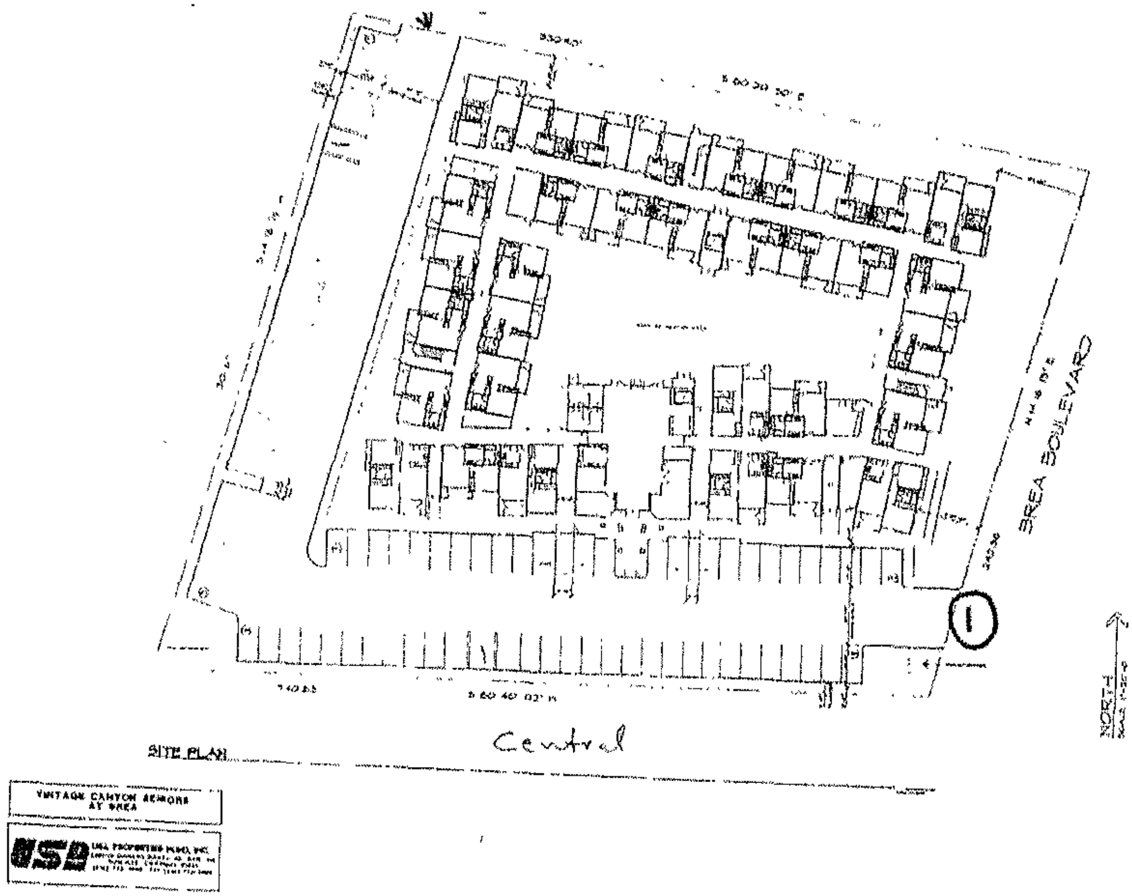
Sincerely,

FEHR & PEERS ASSOCIATES, INC.

John Gard, P.E.
Associate

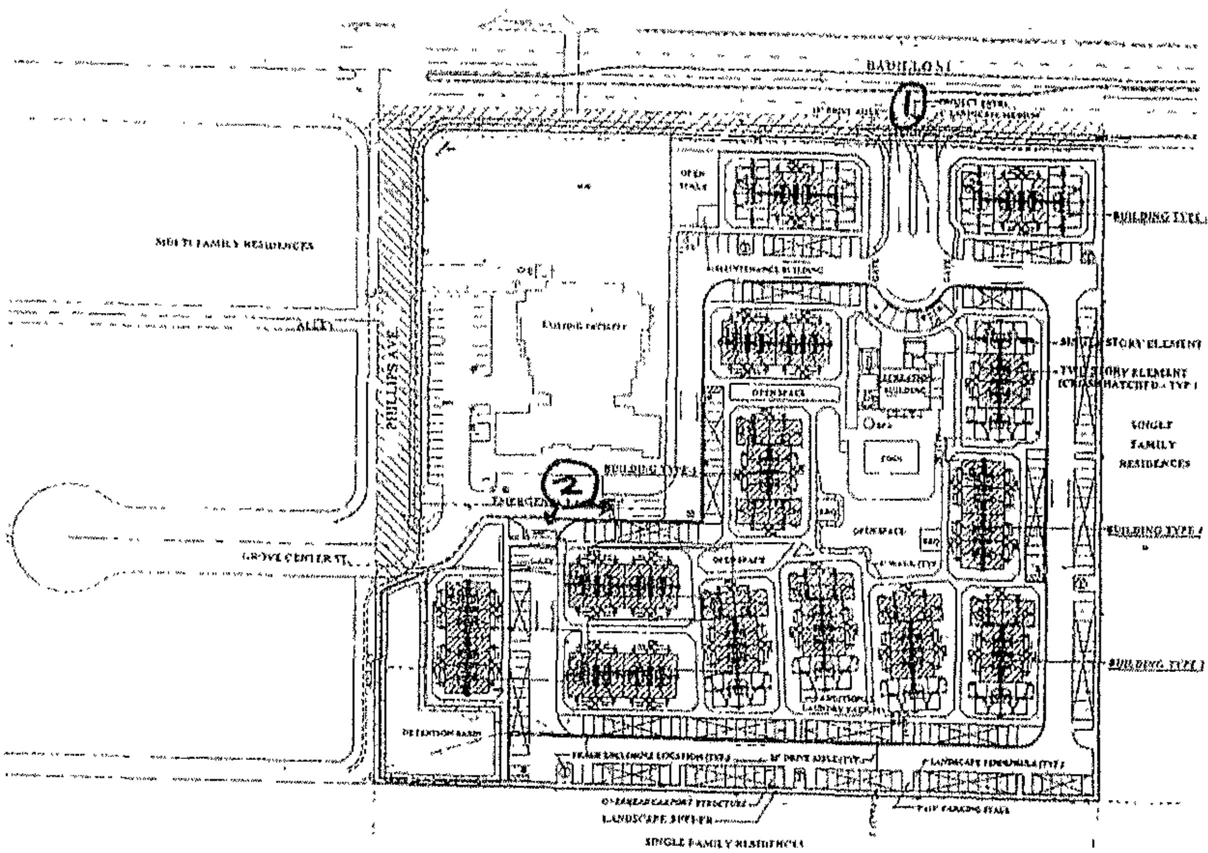
1028-0014

Attachment 1 – Existing Site Plans



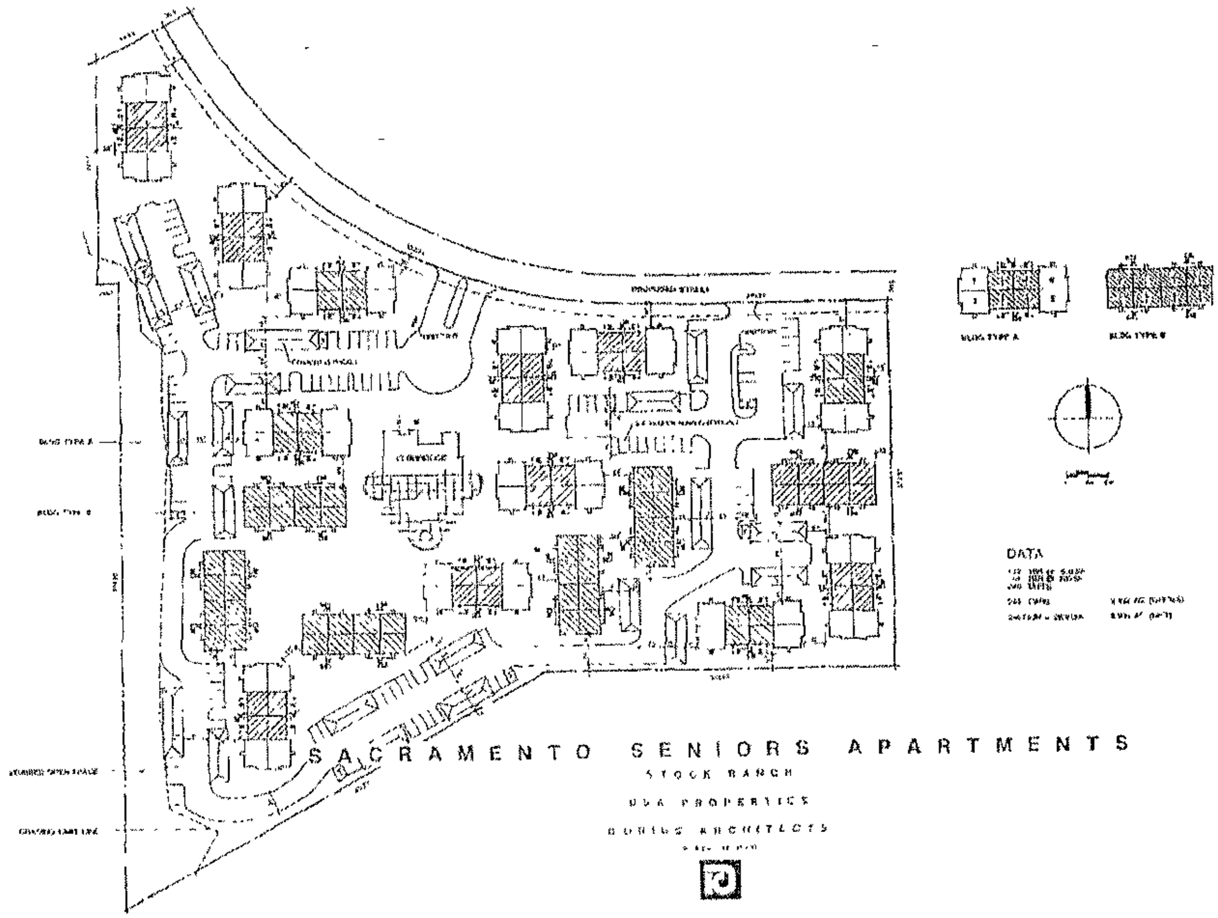
<u>VINTAGE CANYON SENIOR COMMUNITY</u>
Brea, California

Source: USA Properties Fund, Inc.



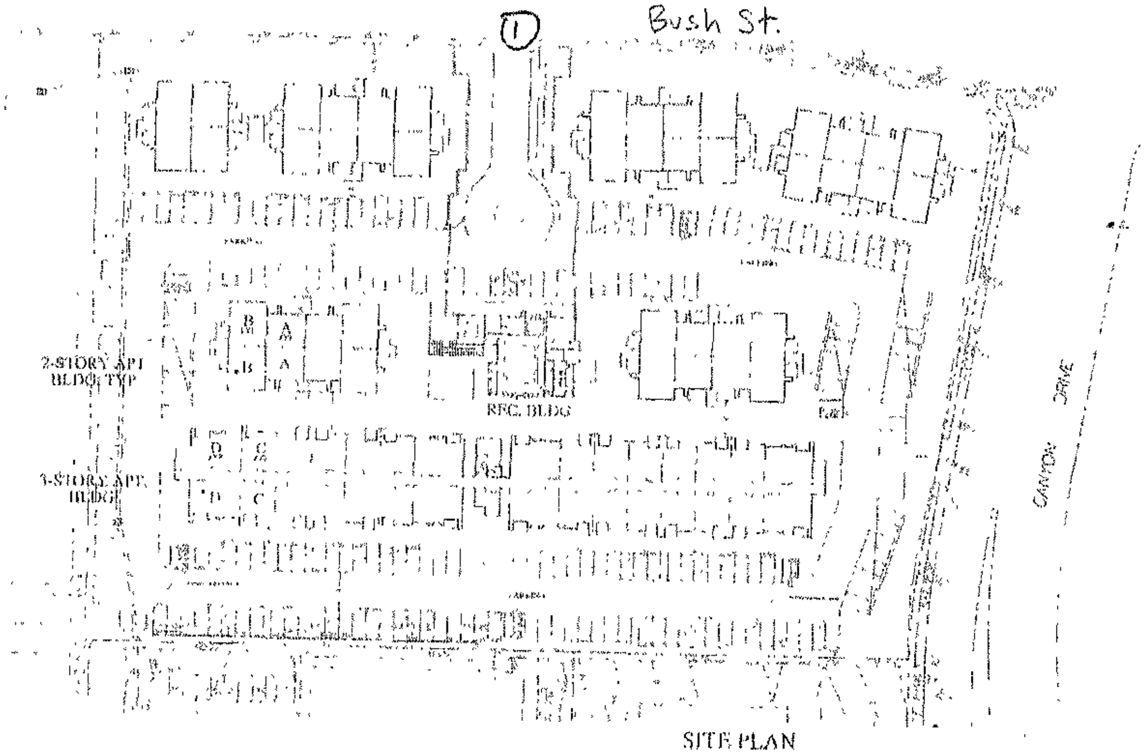
<u>VINTAGE GARDENS SENIOR APARTMENTS</u>
West Covina, California

Source: USA Properties Fund, Inc.



<u>VINTAGE OAKS</u>
Citrus Heights, California

Source: USA Properties Fund, Inc.



VINTAGE POINTE SENIOR COMMUNITY
Oceanside, California

Source: USA Properties Fund, Inc.

Attachment 2 – Traffic Counts and Parking Surveys

Traffic Counts and Parking Surveys at Vintage Chateau Senior Community
(Friday, January 25 - Monday, January 28, 2002)

Date		Friday, January 25							Monday, January 28								Saturday, January 26							Sunday, January 27						
Approach Lanes		SB	SB	WB	WB	NB	NB	Total	SB	SB	WB	WB	NB	NB	Total		SB	SB	WB	WB	NB	NB	Total	SB	SB	WB	WB	NB	NB	Total
Trip Directions		In	Out	In	Out	In	Out		In	Out	In	Out	In	Out			In	Out	In	Out	In	Out		In	Out	In	Out	In	Out	
Driveways		1	1	2	2	3	3		1	1	2	2	3	3			1	1	2	2	3	3		1	1	2	2	3	3	
Traffic Counts AM	7:00 AM	1	2	0	0	0	0	**3**	1	2	0	0	0	1	**4**	11:00 AM	1	5	0	0	0	1	**7**	4	2	0	0	0	0	**6**
	7:15 AM	0	3	0	0	0	1	**4**	0	3	0	0	0	0	**3**	11:15 AM	4	5	0	0	0	2	**11**	1	0	0	0	0	0	**1**
	7:30 AM	0	3	0	0	0	1	**4**	1	1	0	0	0	0	**2**	11:30 AM	7	3	0	1	0	0	**11**	7	2	0	0	0	2	**11**
	7:45 AM	2	1	0	0	0	1	**4**	2	1	0	0	0	0	**3**	11:45 AM	6	4	0	1	0	3	**14**	4	2	0	1	0	2	**9**
	8:00 AM	7	1	0	1	0	2	**11**	4	0	0	0	0	2	**6**	12:00 AM	4	5	0	0	0	1	**10**	3	2	0	3	0	0	**8**
	8:15 AM	3	1	0	1	0	1	**6**	4	1	0	1	0	3	**9**	12:15 AM	3	6	0	1	0	3	**13**	4	0	0	1	0	1	**6**
	8:30 AM	5	2	0	3	0	3	**13**	5	0	0	3	0	3	**11**	12:30 AM	7	5	0	1	0	3	**16**	4	5	0	2	0	1	**12**
	8:45 AM	2	2	0	1	0	3	**8**	2	1	0	1	0	0	**4**	12:45 AM	3	1	0	1	0	0	**5**	12	0	0	1	0	5	**18**
	Peak Hour Volume	**38**							**30**							Peak Hour Volume	**53**							**44**						
Traffic Counts PM	4:00 PM	12	2	0	4	0	0	**18**	3	1	0	2	0	0	**6**	4:00 PM	3	2	0	0	0	4	**9**	3	3	0	0	0	0	**6**
	4:15 PM	4	5	0	2	0	0	**11**	3	1	0	0	0	0	**4**	4:15 PM	6	4	0	2	0	1	**13**	5	3	0	1	0	1	**10**
	4:30 PM	7	2	0	1	0	1	**11**	2	2	0	0	0	1	**5**	4:30 PM	7	4	0	0	0	0	**11**	9	5	0	1	0	0	**15**
	4:45 PM	6	3	0	2	0	0	**11**	6	0	0	2	0	0	**8**	4:45 PM	5	1	0	4	0	0	**10**	5	5	0	0	0	0	**10**
	5:00 PM	2	3	0	1	0	0	**6**	8	5	0	3	0	2	**18**	5:00 PM	5	3	0	1	0	1	**10**	3	2	0	1	0	0	**6**
	5:15 PM	9	4	0	2	0	1	**16**	1	1	0	0	0	1	**3**	5:15 PM	5	2	0	2	0	0	**9**	4	4	0	0	0	0	**8**
	5:30 PM	8	3	0	1	0	1	**13**	3	3	0	1	0	0	**7**	5:30 PM	8	3	0	2	0	0	**13**	5	4	0	1	0	5	**15**
	5:45 PM	7	3	0	2	0	2	**14**	6	3	0	0	0	1	**10**	5:45 PM	6	5	0	1	0	2	**14**	7	1	0	1	0	0	**9**
	Peak Hour Volume	**51**							**38**							Peak Hour Volume	**46**							**41**						
Parking Surveys	4:00 AM - 5:00 AM	**162**							**N/A**							4:00 AM - 5:00 AM	**N/A**							**N/A**						

Notes:
1. In terms of Approach Lanes, SB=South Bound, WB=West Bound, and NB=North Bound.
2. In terms of Trips Directions, Out=Outbound, In=Inbound.
3. Based on 3 driveways, 237 occupied dwelling units and 228 parking spaces provided.
4. Access to site was not possible due to incorrect gate code provided therefore parking surveys between January 26 and January 28, 2002 could not be obtained.

Source: ALL TRAFFIC DATA.

Environmental Noise Analysis

Milpitas Family & Senior Apartments

Bollard & Brennan Project # 2003-177

Milpitas, California

Prepared For:

USA Properties Fund
2440 Professional Drive, suite 100
Roseville, CA 95661
Attn: Mr. Milo Terzich

Prepared By:

Bollard & Brennan, Inc.

Jim Brennan
Vice President
Member, Institute of Noise Control Engineers

October 20, 2003

INTRODUCTION

The proposed Milpitas Family and Senior Housing project is located north of the Montague Expressway, east of South Main Street, and west of the Union Pacific Railroad (UPRR), in the City of Milpitas, California. Commercial land uses adjacent to the project site include a fuel station to the southwest and a Jack In The Box restaurant to the west. See Figure 1 for project site location.

Traffic on the Montague Expressway and South Main Street, and train operations along the UPRR, have been considered to be potentially significant noise sources which may affect the project design. The intent of this analysis is determine the potential future noise levels on the project site, and to provide mitigation measures where noise levels are expected to exceed the City of Milpitas General Plan noise level criteria.

BACKGROUND ON NOISE AND ACOUSTICAL TERMINOLOGY [1]

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

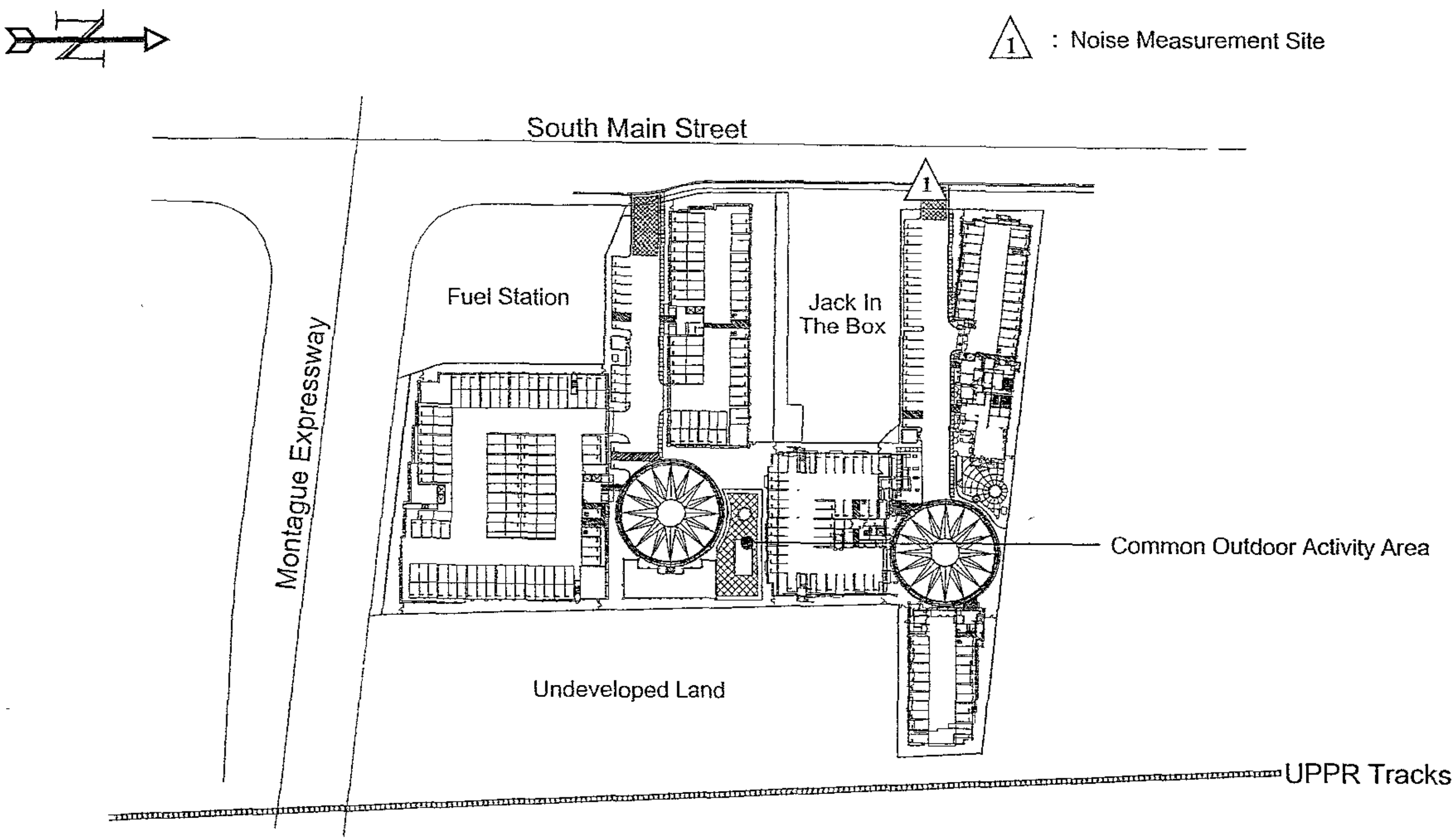
Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dBA. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers is a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dBA. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness. Figure 2 illustrates common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this report are in terms of A-weighted levels.

---

[1] For an explanation of these terms, see Appendix A: "Acoustical Terminology"

Figure 1
Milpitas Family and Senior Housing Project
Milpitas, California

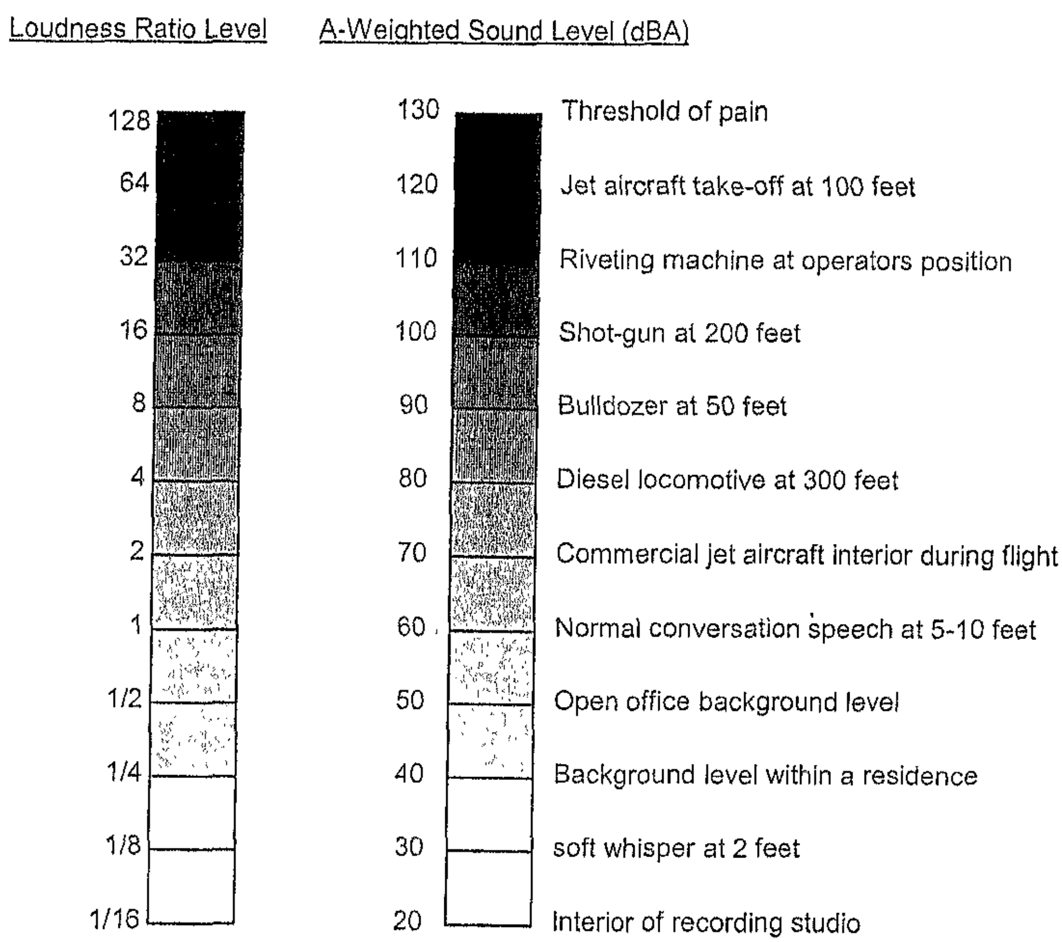


Bollard&Brennan,Inc.

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq). The Leq is the foundation of the day/night average noise descriptor, Ldn, and shows very good correlation with community response to noise.

Figure 2

Typical A-Weighted Sound Levels of Common Noise Sources



CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

City of Milpitas General Plan

The City of Milpitas General Plan establishes a "Normally Acceptable" exterior noise level standard for residential uses of 60 dBA Ldn, which is applied in the outdoor activity areas. A "Conditionally Acceptable" exterior noise level standard of 70 dBA Ldn is applied only after careful study and inclusion of protective measures as needed for intended use. In addition, the City establishes an interior noise level criterion of 45 dB Ldn at all single family and multi-family residential uses. The intent of this interior noise level standard is to provide a suitable environment for indoor communication and sleep.

Issues:

One of the issues relevant to this project, is where on the project site should the City apply the exterior noise level criteria. The exterior noise level criterion of 60 dB Ldn is generally applied at the outdoor activity areas of a project site. In the case of a single family residential development, the exterior noise level standard is applied at the rear yard area of each residence.

In the case of multi-family residential developments, the standard could be applied at the individual patios, a property line, or at a common area which is designated for recreation or outdoor activities such as a recreation complex or pool areas. This practice is common in many jurisdictions. Generally, the intent is to allow for an outdoor area where individuals can relax and conduct outdoor activities, and then focus on maintaining interior noise levels consistent with the General Plan Noise Element for each of the individual units. Based upon discussions with the project applicant, first and sub-terrain floors of all residential buildings constructed on the project site will be devoted to parking, thus limiting all patio areas to second, third, and fourth floors. It should be noted that due to the elevated position of second, third, and fourth floor patio areas, these areas would overlook any sound barrier, making mitigation of exterior nosie levels at these locations unfeasible. Therefore, this analysis will apply the exterior noise level criteria at the Common Outdoor Activity Area shown in Figure 1. In addition, this analysis will also focus on attainment of the interior noise level criterion of 45 dB Ldn for each individual unit.

EVALUATION OF FUTURE EXTERIOR TRAFFIC NOISE LEVELS

Traffic Noise Prediction Methodology:

Bollard & Brennan, Inc. employs the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) for the prediction of traffic noise levels. The FHWA model is the analytical method currently favored for traffic noise prediction by most state and local agencies, including the California Department of Transportation (Caltrans). The model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

On October 1, 2003, Bollard and Brennan, Inc. conducted two sets of noise level measurements and concurrent counts of South Main Street traffic on the project site. The purpose of the short-term traffic noise level measurements is to determine the accuracy of the FHWA model in describing the existing noise environment on the project site, accounting for shielding from local topography, actual travel speeds, and roadway grade. Noise measurement results were compared to the FHWA model results by entering the observed traffic volume, speed and distance as inputs to the FHWA model. See Figure 1 for the noise measurement location. Noise level measurements and concurrent counts of the Montague Expressway were not conducted due to traffic congestion on this roadway.

Instrumentation used for the measurements was a Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter which was calibrated in the field before use with an LDL CA-200 acoustical calibrator. Table 1 shows the results of the traffic noise calibration.

Table 1
Comparison of FHWA Model to Measured South Main Street Traffic Noise Levels

Vehicles			Speed	Distance	Measured	Modeled
Autos	Med. Trk.	Hvy.Trk.	(mph)	(Feet)	L_{eq}, dB	L_{eq}, dB*
246	6	0	40	67	67.0	63.5
242	8	2	40	67	68.5	64.3

* Acoustically "soft" site assumed

Note: Appendix B contains a complete listing of the calibration inputs and results.

Based upon the calibration results, the FHWA Model was found to under predict traffic South Main Street traffic noise levels by 3.5 to 4.2 dB on the project site. However it should be noted that this discrepancy between measured and modeled traffic noise levels has been attributed to noise levels associated with the Jack-in-The Box parking lot and drive-through speakers. Therefore, no adjustment to the model is deemed necessary in the prediction of future South Main Street traffic noise levels.

To determine the future traffic noise levels on the project site, Bollard & Brennan, Inc. used traffic data provided by Hexagon Transportation Consultants, Inc. Using the FHWA traffic noise prediction methodology the future traffic noise levels shown in Table 2 were predicted.

Table 2
Predicted Future Montague Expressway and South Main Street Traffic Noise Levels

Roadway	Distance to Common Area*	Predicted Ldn at Common Area	Distance to Nearest Patio Area*	Predicted Ldn at Nearest Patio
Montague Expressway	415	50**	90	70 dB
South Main Street	385	47**	70	68 dB

*Predicted distances to outdoor common area and nearest patio areas are from the roadway centerline.
** These levels include a -10 dB reduction due to shielding caused by to intervening structures
Note: A complete listing of FHWA Model inputs and results is provided in Appendix C.

Based upon Table 2, future Montague Expressway and South Main Street traffic noise levels at the Common Outdoor Activity Area are predicted to be approximately 50 dB Ldn and 47 dB Ldn, respectively, and would comply with the City of Milpitas 60 dB Ldn exterior noise level criterion. As previously discussed, the exterior noise level standard is not applied at the individual patio areas. Therefore, no additional mitigation measures would be required.

EVALUATION OF FUTURE LIGHT RAIL NOISE LEVELS

Union Pacific Railroad (UPRR) tracks currently extend along the eastern boundary of the project site as shown in Figure 1. Based upon observations on the site, the tracks do not appear to be in use. However, Bollard & Brennan, Inc. has be requested to evaluate potential future light rail activities on the tracks. Based on an analysis of Light Rail Noise, an Ldn of approximately 60 dB at a distance of 50 feet from the tracks was calculated at locations not in the immediate vicinity of intersection warning bells, and 65 dB Ldn at locations within approximately 50 feet of those warning bells. The analysis assumes one light rail train every 15 minutes for 15 hours of operations.

As shown in Figure 1, the nearest portion of the Common Outdoor Activity Area is located approximately 190 feet from the railroad tracks. Based upon this distance and the absence of warning bells at this location, Light Rail vehicle activity is predicted to generate noise levels of approximately 51.3 dB Ldn at this location and would comply with the 60 dB Ldn exterior noise level standard. Predicted noise levels at the nearest building facade located 40 feet from the tracks would be approximately 61.5. However, the exterior nosie level criterion of 60 dB Ldn is not applied at this location. Therefore, no additional mitigation measures would be required.

PREDICTED INTERIOR NOISE LEVELS

Standard construction practices, consistent with the uniform building code will provide an exterior to interior noise level reduction of 25 dB. Assuming that exterior noise levels at building facades will not exceed 70 dB Ldn, the interior noise levels will comply with the City of Milpitas interior noise level standard of 45 dB Ldn. This assumes that air conditioning is included for each unit, which allows residents to close windows for the required acoustical isolation.

Based upon the analysis, predicted worst case future exterior traffic noise levels are 70 dB Ldn and 68 dB Ldn at the first floor facade of buildings facing the Montague Expressway and South Main Street, respectively. The predicted exterior noise levels from the railroad operations are predicted to be approximately 61.5 dB Ldn at the nearest first floor building facade.

Second floor facades are generally exposed to elevated noise levels of approximately 2 dB to 3 dB due to the lack of excess ground absorption. Based upon an addition of 3 dB for upper floor exterior noise levels, standard residential construction will result in interior noise levels which will comply with the 45 dB Ldn interior noise level standard at residential units facing South Main Street and the Southern Pacific Railroad tracks.

Interior noise levels at the upper floor residential units facing the Montague Expressway may not comply with the interior noise level standard of 45 dB Ldn. The buildings nearest to the Montague Expressway would receive upper floor exterior traffic noise levels of approximately 73 dB Ldn, and would thus require additional construction practices in order to comply with 45 dB interior noise level standard.

In order to determine the specific construction practices necessary for the residential buildings nearest to the Montague Expressway to comply with this interior noise level standard of 45 dB Ldn, a detailed exterior to interior building facade noise reduction analysis would be needed. Information required for such an analysis would include detailed construction plans, floor plans and building elevation plans. As an alternative, the construction practices shown in Table 3 could be included in the construction of the upper floors of the nearest units facing the Montague Expressway. These construction practices would only be required for the first row of the upper floor facades which have a view of the roadway.

Table 3

NLR of 30 dB for Second Floor Building Facade Facing The Montague Expressway

Normal construction practices per the latest edition of the Uniform Building Code are sufficient provided that:

1.	Air conditioning or mechanical ventilation systems are installed so that windows and doors may remain closed.
2.	Windows and sliding glass doors are mounted in low air infiltration rate frames (0.5 cfm or less, per ANSI specifications).
3.	Exterior doors are solid core with perimeter weather-stripping and threshold seals.
4.	Exterior walls consist of three-coat stucco, or a wood siding with a 5/8" plywood sheeting underlayer, or brick veneer.
5.	Glass in both windows and doors should not exceed 20% of the floor area in a room.
6.	Windows should have an Sound Transmission Classification (STC) rating of at least 35.
7.	Roof or attic vents facing the noise source of concern should be boxed.

CONCLUSIONS

The Milpitas Family and Senior Housing project site will comply with the City of Milpitas 60 dB Ldn exterior noise level criterion and the 45 dB Ldn interior noise level criterion for new residential developments, provided that the following recommendations are included in the project design:

1. All buildings within the project site must be constructed consistent with the Uniform Building Code.

2. In order to determine the specific construction practices necessary for the residential buildings nearest to the Montague Expressway to comply with this interior noise level standard of 45 dB Ldn, a detailed exterior to interior building facade noise reduction analysis would be needed. Information required for such an analysis would include detailed construction plans, floor plans and building elevation plans. As an alternative, the construction practices shown in Table 3 could be included in the construction of the upper floors of the nearest units facing the Montague Expressway. These construction practices would only be required for the first row of the upper floor facades which have a view of the roadway.

3. Air conditioning should be included in all units to allow occupants to close doors and windows as desired for acoustical isolation.

These conclusions are based on the traffic information provided by the project traffic consultant, and on noise reduction data for standard residential dwellings and for typical STC rated window data. Bollard & Brennan, Inc. is not responsible for degradation in acoustic performance of the residential construction due to poor construction practices, failure to comply with applicable building code requirements, or for failure to adhere to the minimum building practices cited in this report.

Appendix A

Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

Ldn Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

Leq Equivalent or energy-averaged sound level.

Lmax The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.

Impulsive Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.

Simple Tone Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B-1

FHWA Traffic Noise Prediciton Model (FHWA-RD-77-108) Calibration Worksheet

Project Information	Job Number:	2003-177
	Project Name:	Milpitas Family and Senior Housing Project
	Roadway Tested:	North Main Street
	Test Location:	On Project Site
	Test Date:	October 1, 2003
Weather Conditions	Temperature (Fahrenheit):	85
	Relative Humidity:	Moderate
	Wind Speed and Direction:	0-3 N
	Cloud Cover:	Clear
Sound Level Meter	Sound Level Meter:	LDL Model 820
	Calibrator:	LDL Model CA200
	Meter Calibrated:	Immediately before and after test
	Meter Settings:	A-weighted, slow response
Microphone	Microphone Location:	On Project Site
	Distance to Centerline (feet):	67
	Microphone Height:	5 feet above ground
	Intervening Ground:	soft
	Elevation Relative to Road (feet):	0
Roadway Condition	Pavement Type	Asphalt
	Pavement Condition:	Good
	Number of Lanes:	4
	Posted Maximum Speed (mph):	40
Test Parameters	Test Time:	03:17 PM
	Test Duration (minutes):	15
	Observed Number Automobiles:	246
	Observed Number Medium Trucks:	6
	Observed Number Heavy Trucks:	0
	Observed Average Speed (mph):	40
Model Calibration	Measured Average Level (Leq):	67
	Level Predicted by FHWA Model:	63.5

Difference: -3.5 dB

Appendix B-2

FHWA Traffic Noise Prediciton Model (FHWA-RD-77-108) Calibration Worksheet

Project Information	Job Number:	2003-177
	Project Name:	*Milpitas Family and Senior Housing Project*
	Roadway Tested:	North Main Street
	Test Location:	On Project Site
	Test Date:	October 1, 2003
Weather Conditions	Temperature (Fahrenheit):	85
	Relative Humidity:	Moderate
	Wind Speed and Direction:	0-3 N
	Cloud Cover:	Clear
Sound Level Meter	Sound Level Meter:	LDL Model 820
	Calibrator:	LDL Model CA200
	Meter Calibrated:	Immediately before and after test
	Meter Settings:	A-weighted, slow response
Microphone	Microphone Location:	On Project Site
	Distance to Centerline (feet):	67
	Microphone Height:	5 feet above ground
	Intervening Ground:	soft
	Elevation Relative to Road (feet):	0
Roadway Condition	Pavement Type	Asphalt
	Pavement Condition:	Good
	Number of Lanes:	4
	Posted Maximum Speed (mph):	40
Test Parameters	Test Time:	03:33 PM
	Test Duration (minutes):	15
	Observed Number Automobiles:	242
	Observed Number Medium Trucks:	8
	Observed Number Heavy Trucks:	2
	Observed Average Speed (mph):	40
Model Calibration	Measured Average Level (Leq):	68.5
	Level Predicted by FHWA Model:	64.3
	Difference:	***-4.2 dB***

Appendix C-1

FHWA Traffic Noise Prediciton Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information

Job Number:	2003-177
Project Name:	Milpitas Family and Senior Housing Project
Roadway Name:	Montague Expressway

Traffic Data

Year:	Cumulative
Average Daily Traffic Volume:	55,400
Percent Daytime Traffic:	83
Percent Nighttime Traffic:	17
Percent Medium Trucks (2 axle):	2.0
Percent Heavy Trucks (3+ axle):	1.0
Assumed Vehicle Speed (mph):	40
Intervening Ground Type:	**Soft**
Calibration Offset (dB):	0

Traffic Noise Levels

Location		Distance	Ldn, dB Autos	Medium Trucks	Heavy Trucks	Total
1	Common Outdoor Area	415	58	51	52	60
2	Nearest Patios	90	68	61	62	70

Noise Contours

Ldn Contour	Distance from Centerline, Feet
75	41
70	89
65	192
60	413

Appendix C-2

FHWA Traffic Noise Prediciton Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information

Job Number:	2003-177
Project Name:	Milpitas Family and Senior Housing Project
Roadway Name:	South Main Street

Traffic Data

Year:	Cumulative
Average Daily Traffic Volume:	24,750
Percent Daytime Traffic:	83
Percent Nighttime Traffic:	17
Percent Medium Trucks (2 axle):	*2.0*
Percent Heavy Trucks (3+ axle):	1.0
Assumed Vehicle Speed (mph):	40
Intervening Ground Type:	**Soft**
Calibration Offset (dB):	0

Traffic Noise Levels

			Ldn, dB			
Location		Distance	Autos	Medium Trucks	Heavy Trucks	Total
1	Common Outdoor Area	385	55	48	49	57
2	Nearest Patios	70	67	59	60	68

Noise Contours

Ldn Contour	Distance from Centerline, Feet
75	24
70	52
65	112
60	241

Environmental Vibration Analysis

Milpitas Family & Senior Apartments

Bollard & Brennan Project # 2003-233

Milpitas, California

Prepared For:

USA Properties Fund
2440 Professional Drive, suite 100
Roseville, CA 95661
Attn: Mr. Milo Terzich

Prepared By:

Bollard & Brennan, Inc.

Jim Brennan
Vice President
Member, Institute of Noise Control Engineers

January 26, 2004

INTRODUCTION

The proposed Milpitas Family and Senior Housing project is located north of the Montague Expressway, east of South Main Street, and west of the Union Pacific Railroad (UPRR), in the City of Milpitas, California. Commercial land uses adjacent to the project site include a fuel station to the southwest and a Jack In The Box restaurant to the west. See Figure 1 for project site location.

Previously, Bollard & Brennan, Inc. conducted an Environmental Noise Analysis for the project site, dated October 20, 2003 (Environmental Noise Analysis, Milpitas Family & Senior Apartments, Milpitas California, Bollard & Brennan, Inc. October 20, 2003).

The City of Milpitas has also requested a supplemental analysis of potential vibration impacts associated with railroad operations, at the project site. The intent of this analysis is to determine the potential worst case vibration impacts along the rail corridor.

VIBRATION TERMINOLOGY

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A persons perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

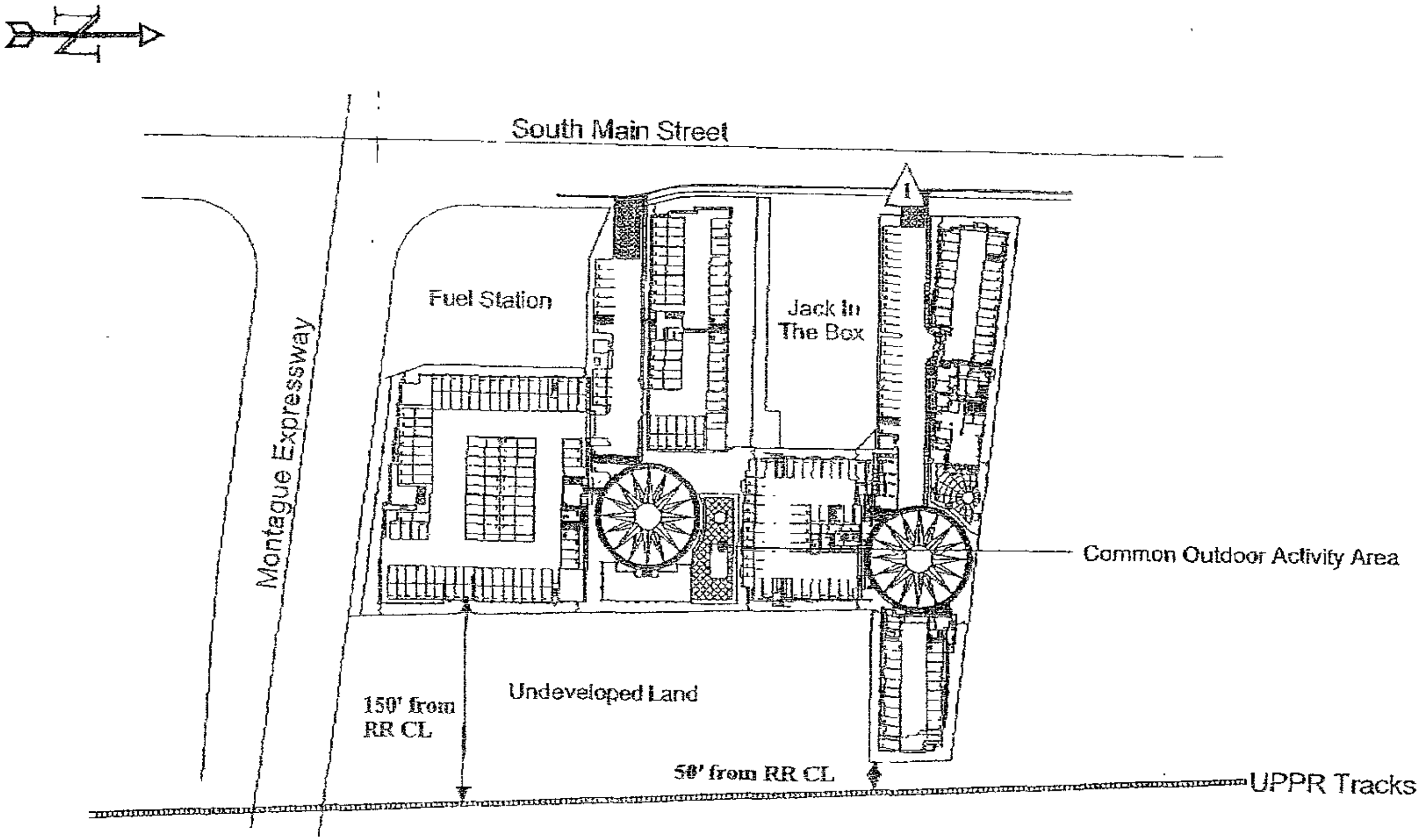
Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

CRITERIA FOR ACCEPTABLE VIBRATION EXPOSURE

The City of Milpitas does not contain specific policies pertaining to vibration levels. Because the project site is located adjacent to railroad tracks, the effects of railroad-induced-vibration are considered in this analysis.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 1, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second. Table 1 indicates that the threshold for damage to structures ranges from 2 to 6 in/sec. One-half this minimum threshold, or 1 in/sec p.p.v. is considered a safe criterion that would protect against architectural or structural damage The general threshold at which human annoyance could occur is notes as 0.1 in/sec p.p.v.

Figure 1
Milpitas Family and Senior Housing Project
Milpitas, California



Bollard&Brennan, Inc.

Table 1
Effects of Various Vibration Levels on People and Buildings

Peak Particle Velocity inches/second	Human Reaction	Effect on Buildings
0-.006	Imperceptible by people	Vibrations unlikely to cause damage of any type
.006-.02	Range of Threshold of perception	Vibrations unlikely to cause damage of any type
.08	Vibrations clearly perceptible	Recommended upper level of which ruins and ancient monuments should be subjected
0.1	Level at which continuous vibrations begin to annoy people	Virtually no risk of architectural damage to normal buildings
0.2	Vibrations annoying to people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
1.0		Architectural Damage
2.0		Structural Damage to Residential Buildings
6.0		Structural Damage to Commercial Buildings

Source: Survey of Earth-borne Vibrations due to Highway Constuction and Highway Traffic, Caltrans 1976.

EVALUATION OF RAIL VIBRATION LEVELS

Union Pacific Railroad (UPRR) tracks currently extend along the eastern boundary of the project site as shown in Figure 1. The nearest residential building facade is approximately 50 feet from the centerline of the railroad track. Based upon observations on the site, the tracks do not appear to be in use. However, Bollard & Brennan, Inc. has been contacted by the City of Milpitas, and they have stated that the track could accommodate future light rail operations, and that an occasional freight train could also operate along the track.

To quantify railroad vibration levels, Bollard & Brennan, Inc. conducted two sets of vibration measurements of train passages along a ATS&F track in Oakley, and the UPRR track in Roseville, California. The vibration measurements in the Cities of Oakley and Roseville consisted of peak particle velocity sampling at a distance of approximately 50 feet and 150 feet from the railroad tracks, respectively. The train passages in Oakley consisted of five freight trains and one Amtrak. The trains ranged from 1 to 8 locomotives and from 4 to 80 cars. The train passages in Roseville consisted of five freight trains. The number of locomotives and cars was not noted during these tests.

The measurements were conducted using a Larson-Davis Laboratories Model HVM-100 Vibration Analyzer with a PCB Electronics Model 353B51 ICP Vibration Transducer. The test system is a Type I instrument designed for use in assessing vibration as perceived by human beings, and meets the full requirements of ISO 8041:1990(E). Atmospheric conditions present during the tests were within the operating parameters of the instrument. The results of the vibration measurements are shown in Table 2.

Table 2
Vibration Measurement Results

Location	Distance	Duration	Train Type	# Engines	# Cars	Peak Vibration (in./sec.)
Oakley	50 feet	1:23	Freight	8	80	0.097
Oakley	50 feet	1:42	Freight	8	73	0.108
Oakley	50 feet	:56	Freight	4	25	0.064
Oakley	50 feet	:24	Freight	3	19	0.106
Oakley	50 feet	:29	Freight	4	27	0.101
Oakley	50 feet	:18	Amtrak	1	4	0.097
Roseville	100 feet	:25	Freight	--	--	0.032
Roseville	100 feet	:85	Freight	--	--	0.040
Roseville	100 feet	:55	Freight	--	--	0.036
Roseville	100 feet	:84	Freight	--	--	0.040
Roseville	100 feet	:96	Freight	--	--	0.032

Source: Bollard & Brennan, Inc.

Comparison of the Table 2 data against the Table 1 vibration thresholds indicates that the measured vibration levels at a distance of 50 feet from the track were below the threshold of architectural damage. However, in some cases the levels approached the threshold where individuals would be annoyed. The results of the vibration measurements at a distance of 150 feet were well below thresholds which would cause any damage to structures, but could be in the range of perception.

CONCLUSIONS

The first tier of residential structures on the project site (50 feet from the railroad track centerline) will be exposed to vibration levels which are considered to be below the threshold of architectural damage. However, in some cases the levels approached the threshold where individuals would be annoyed. The second tier of residential structures on the project site (150 feet from the railroad track centerline) were well below thresholds which would cause any damage to structures, but could be in the range of perception.

Appendix A

Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

Ldn Day/Night Average Sound Level Similar to CNEL but with no evening weighting.

Leq Equivalent or energy-averaged sound level.

Lmax The highest root-mean-square (RMS) sound level measured over a given period of time.

L(n) The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one hour period.

Loudness A subjective term for the sensation of the magnitude of sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.

Impulsive Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.

Simple Tone Any sound which can be judged as audible as a single pitch or set of single pitches.

Bollard & Brennan, Inc.

Consultants in Acoustics and Noise Control Engineering

April 23, 2004

RECEIVED
APR 26 2004
USA PROPERTIES FUND

Mr. Milo Terzich
USA Properties Fund
2440 Professional Drive, Suite 100
Roseville, CA 95661

Dear Mr. Terzich:

Bollard & Brennan, Inc. has reviewed the revised Tentative Map for the Milpitas Family and Senior Housing Project, dated March 1, 2004. Previously Bollard & Brennan, Inc. conducted both an Environmental Noise Analysis (Environmental Noise Analysis, Milpitas Family & Senior Apartments, Bollard & Brennan, Inc., October 20, 2003), and an Environmental Vibration Analysis (Environmental Vibration Analysis, Milpitas Family & Senior Apartments, Bollard & Brennan, Inc., January 26, 2004) for the project site.

The following provides our conclusions on the potential changes in noise and vibration impacts due to the revisions on the new Tentative Map.

Noise Impacts

The conclusions on the potential traffic noise impacts have not changed. No residential uses will be located any closer to major roadways such as the Montague Expressway or South Main Street.

The proposed changes to the site plan include relocating residential facades further from the railroad track. Predicted noise levels due to potential light rail or heavy train operations will comply with the exterior noise level criterion of 60 dB Ldn.

Conclusions on interior noise levels contained within the previous analysis do not change.

Vibration Impacts

The primary concern with regards to potential vibration impacts was associated with railroad operations. The fact that the revised Tentative Map has relocated the nearest residences from 50 feet away from the railroad track centerline, to a distance of more than 150 feet from the railroad track indicates that no residences will be exposed to vibration levels which would cause architectural damage.

Conclusions

Upon review of the revised Tentative Map for the Milpitas Family and Senior Housing Project, dated March 1, 2004, it is not expected that the project site will be exposed to noise or vibration levels in excess of those stated in the previous environmental noise and vibration analyses. Mitigation measures recommended in the previous analyses will continue to be required, as stated.

If you or the City of Milpitas staff have any questions, please contact me in our Auburn office at (530) 745-0191.

Respectfully submitted,

Bollard & Brennan, Inc.

Jim Brennan
Vice President
member: Institute of Noise Control Engineering

Bollard & Brennan, Inc.

Consultants in Acoustics and Noise Control Engineering

RECEIVED
SEP 14 2004
USA PROPERTIES FUND

September 13, 2004

Mr. Milo Terzich
USA Properties Fund
2440 Professional Drive, Suite 100
Roseville, CA 95661

Dear Mr. Terzich,

At the request of the City of Milpitas planning staff, Bollard & Brennan, Inc. has prepared an addendum to the Milpitas Family & Senior Apartments Environmental Noise Analysis, dated October 20, 2003.

The intent of this analysis is to provide an analysis of heavy rail noise levels at the project site along the adjacent railroad track. Based upon the revised site plan provided by USA properties, the common outdoor activity area is located approximately 275 feet from the railroad track centerline. The potential for future railroad noise levels is based upon rerouting of existing heavy rail operations to the track.

Typical railroad Sound Exposure Levels (SEL) data for a train passby at 100 feet is approximately 100 dB. Assuming up to 20 trains per day on the rail line, the Ldn value can be calculated as follows:

$$Ldn = SEL + (10 \log Neq) - 49.4 \text{ dB, where:}$$

SEL is the mean sound exposure level for each train passby, 10 log Neq is 10 times the logarithm of the equivalent number of daily operations, and 49.4 is 10 times the logarithm of the number of second in a day.

Based upon the formula described above, the Ldn at 100 feet is 68 dB at a distance of 100 feet. The predicted noise level at the outdoor activity area is 60 dB Ldn. Therefore, the predicted noise levels will comply with the City of Milpitas General Plan Noise Element exterior noise level criterion.

It is expected that the Table 3 recommendations for comply with interior noise levels will be required for all building facades with a view of the railroad track.

1293 Lincoln Way, Suite A • Auburn, California 95603 • Phone: (530) 745-0191 • Fax: (530) 745-0192